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Digital Reading Behavior in Afghanistan: A Meta-Synthesis of Influential Factors

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ABSTRACT

The proliferation of digital technologies has transformed global reading practices, yet Afghanistan faces profound challenges with one of the world's lowest adult literacy rates (43%) and severely limited internet access (only around 18% of the population has consistent connectivity). This digital divide creates a significant barrier to the adoption of digital reading, necessitating a specialized investigation into the factors shaping digital reading behaviors in this unique context. A meta-synthesis following Sandelowski and Barroso's seven-step model was conducted, analyzing 25 qualitative and mixed-methods studies (2015-2025) from Afghanistan and comparable contexts. Databases searched included PubMed, ERIC, Google Scholar, and the repositories of Afghan universities. Studies were systematically evaluated using the Critical Appraisal Skills Programme (CASP.[1]) checklist and data analysis followed Thomas and Harden's thematic synthesis approach. Key factors emerged across five domains: (1) Personal (digital literacy, motivation, cognitive load), (2) Environmental (infrastructure limitations), (3) Technical (device accessibility, UI design), (4) Psychosocial (family influence), and (5) Content-related (language localization, multimedia integration). Digital literacy and infrastructure were identified as the most critical barriers. Strengthening digital literacy programs, optimizing low-bandwidth content, and culturally adapting interfaces are vital for enhancing digital reading engagement in Afghanistan. Future research should focus on developing and testing pragmatic solutions tailored to this reality, including low-bandwidth content delivery models and community-based digital literacy initiatives.

KEYWORDS: *Afghanistan, Content Localization, Digital Literacy, Digital Reading Behavior, Infrastructure Limitations, Meta-synthesis, Multimedia Integration.*

Introduction

The proliferation of digital technologies has fundamentally transformed global reading practices, shifting interactions with information from print-based to screen-based modalities. Moyer (2020) stated that this digital transition offers unprecedented opportunities for accessing vast repositories of knowledge, fostering interactive learning, and supporting personalized education pathways. However, this global narrative of digital adoption contrasts starkly with the socio-educational reality in Afghanistan. The nation faces profound challenges, characterized by one of the world's lowest adult literacy rates, estimated at approximately 43% (UNESCO, 2022), and severely limited and intermittent internet access, with only around 18% of the population having consistent connectivity (International Telecommunication Union [ITU], 2023). This digital divide creates a significant barrier to the adoption of digital reading practices, placing Afghanistan at a critical juncture where the potential of digital information remains largely untapped for a majority of its population.

[1] **Critical Appraisal Skills Programme**

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Understanding digital reading behavior requires a grounding in theoretical frameworks that explain its cognitive and structural complexities. Coiro (2021) argued that, unlike the linear nature of print reading, digital reading is often characterized as non-linear, requiring distinct skills related to hypertext navigation, information evaluation, and synthesis. Coiro's work on "new literacies" emphasized that readers in digital environments must actively construct meaning by integrating information across multiple modalities and sources, a process that demands higher-order critical thinking skills. Concurrently, Sweller (2011) noted that Cognitive Load Theory remains highly relevant, positing that learners have a limited working memory capacity. Digital environments, with their potential for multimedia integration, interactive elements, and extraneous distractions like pop-ups and advertisements, can easily induce cognitive overload, thereby hindering comprehension and deep reading. Clinton (2022) observed that this challenge is amplified in contexts where foundational literacy skills are still developing, as the cognitive load of decoding text combines with the load of navigating the digital interface, potentially overwhelming the reader.

The educational landscape in Afghanistan presents significant challenges that profoundly impact any form of learning, including digital reading. Decades of conflict have devastated the country's educational infrastructure. The World Bank (2023) reported that a stark rural-urban digital divide persists; while urban centers may have relatively better connectivity, only 18% of households in rural areas have internet access, and electricity remains unreliable nationwide. These infrastructural constraints mean that for many Afghans, digital reading is not a choice but an inaccessible luxury, shaped by circumstances far beyond individual motivation or skill.

While extensive research and meta-syntheses have identified a spectrum of factors influencing digital reading behavior in developed and various developing contexts, Nildarar and Koohi Rostami (2025) pointed out that a critical void exists in the consolidated, qualitative understanding of these phenomena within Afghanistan. Existing studies often focus on broad educational access but fail to synthesize the specific, multi-layered factors that shape how Afghans, particularly students and educators, interact with digital texts. The unique interplay of prolonged conflict, cultural norms, infrastructural fragility, and specific linguistic needs creates a context where findings from other regions may not be directly applicable. Without a synthesized evidence base, policymakers, educators, and technology developers lack the nuanced insights required to design and implement effective digital literacy initiatives and reading platforms tailored to the Afghan reality.

The recent meta-synthesis by Nildarar and Koohi Rostami (2025) provided a robust framework for understanding digital reading behavior, identifying key influencing factors across personal, environmental, technical, psychosocial, and content-related domains. Their work highlighted the universal importance of digital literacy, user interface design, and the impact of digital distractions. However, while this framework is foundational, its application to the Afghan context requires specific consideration of factors that are either amplified or unique to the region. For instance, their "environmental factors" category, which includes internet quality, takes on an extreme dimension in Afghanistan, where infrastructure is not just poor but often non-existent. Furthermore, the "content-related" domain must be viewed through the lens of language localization, as the scarcity of high-quality digital content in Dari and Pashto represents a critical barrier not emphasized in global syntheses. This study, therefore, builds upon the work of Nildarar and Koohi Rostami (2025) by applying and adapting their framework to a context where basic educational and technological precursors for digital reading are severely constrained.

Therefore, this study aims to synthesize qualitative insights into the factors influencing digital reading behavior in Afghanistan. By systematically aggregating and analyzing findings from existing qualitative and mixed-methods research, this paper seeks to identify the key personal, environmental, technical, psychosocial, and content-related determinants that shape how individuals in Afghanistan engage with digital texts. The ultimate objective is to generate a comprehensive, context-specific framework that can inform culturally relevant pedagogical strategies, technology development, and policy-making to foster more effective and equitable digital reading practices in the country.

Materials and Methods

This study employs a qualitative meta-synthesis design to achieve a deep, contextualized understanding of digital reading behavior in Afghanistan. Guided by the rigorous seven-stage model of Sandelowski and Barroso (2007), this methodology was chosen for its suitability in integrating disparate qualitative findings to generate new theoretical insights, broader conceptual understandings, and contextual knowledge that transcends the sum of the individual studies. The goal is not to

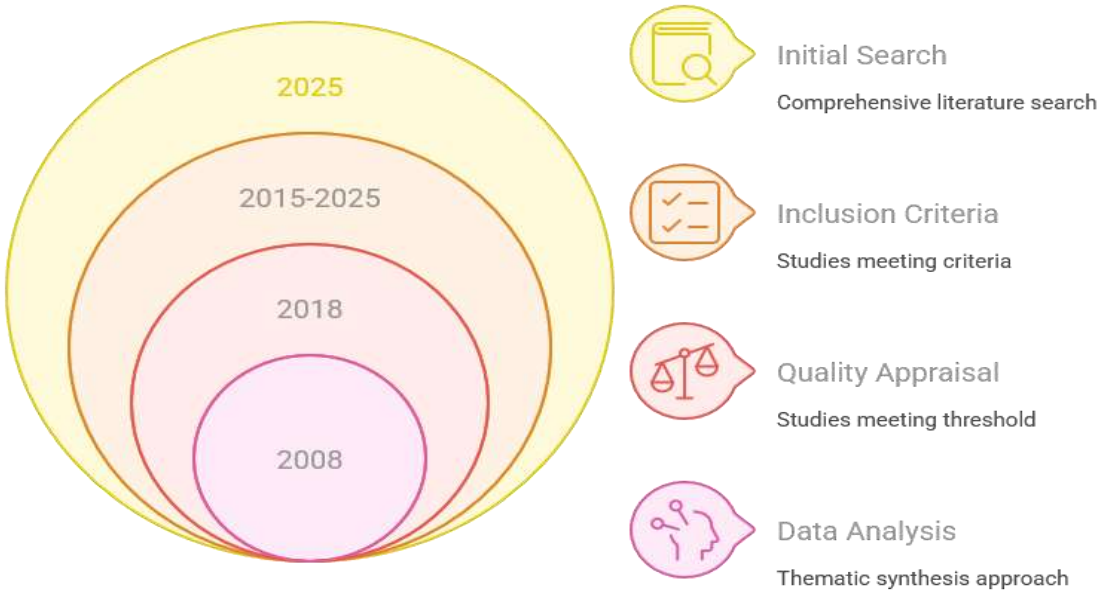
statistically aggregate data but to qualitatively synthesize interpretations, metaphors, and concepts from across relevant studies to develop a comprehensive framework of influential factors specific to the Afghan context.

A systematic and comprehensive literature search was conducted between January and March 2025 to identify relevant studies published between 2015 and 2025. The search strategy was developed in consultation with an academic librarian and employed a combination of keywords and subject headings. The following keywords were used in various combinations: "digital reading Afghanistan," "online behavior Afghan students," "e-reading barriers Kabul," "screen reading practices Afghanistan," "digital literacy Afghan," "mobile learning Afghanistan," and "educational technology Afghanistan." The databases searched included PubMed, ERIC, Google Scholar, ProQuest Dissertations & Theses Global, and specialized Afghan university repositories such as the Kabul University Library Digital Archive and the American University of Afghanistan's online database.

The inclusion criteria were: (1) studies published between 2015 and 2025; (2) studies utilizing qualitative, mixed-methods, or case study methodologies; (3) studies that included participants from Afghanistan, for instance students, teachers, librarians, or the general public; and (4) studies that reported on themes related to digital reading, online information seeking, or use of digital educational content.

The methodological rigor and quality of the studies identified through the search were critically appraised to ensure the trustworthiness of the synthesis findings. Two independent reviewers used the ten-question Critical Appraisal Skills Program (CASP.[2]) checklist for qualitative research (CASP, 2018) to evaluate each included study. The CASP tool assesses the clarity of the study's aims, the appropriateness of the methodology, the recruitment strategy, data collection methods, the relationship between researcher and participants, ethical considerations, the rigor of data analysis, the clarity of findings, and the overall value of the research. Studies that did not meet a minimum threshold on core criteria such as clear aims, appropriate methodology, and rigorous analysis were excluded from the final synthesis. Any disagreements between the reviewers were resolved through discussion or consultation with a third reviewer.

Data analysis followed the thematic synthesis approach developed by Thomas and Harden (2008), which is highly compatible with the Sandelowski and Barroso framework. This process involved three stages. First, the "findings" or "results" sections of all included studies were subjected to line-by-line coding to capture the essence of each concept or idea. This inductive process resulted in a large list of initial "free codes." Second, these codes were systematically organized into related groups to develop "descriptive themes" that stayed close to the original findings of the included studies. For example, codes related to "lack of electricity," "poor internet speed," and "device cost" were grouped into a descriptive theme labeled



[2] **Critical Appraisal Skills Programme**

"Infrastructural and Technical Barriers." The third and final stage involved the development of "analytical themes." In this stage, the descriptive themes were examined and re-interpreted to generate new concepts, hypotheses, and a conceptual framework that answered the specific research questions of this meta-synthesis. This process allowed for moving beyond a simple summary of existing studies to a higher-order interpretation of the factors influencing digital reading behavior in Afghanistan.

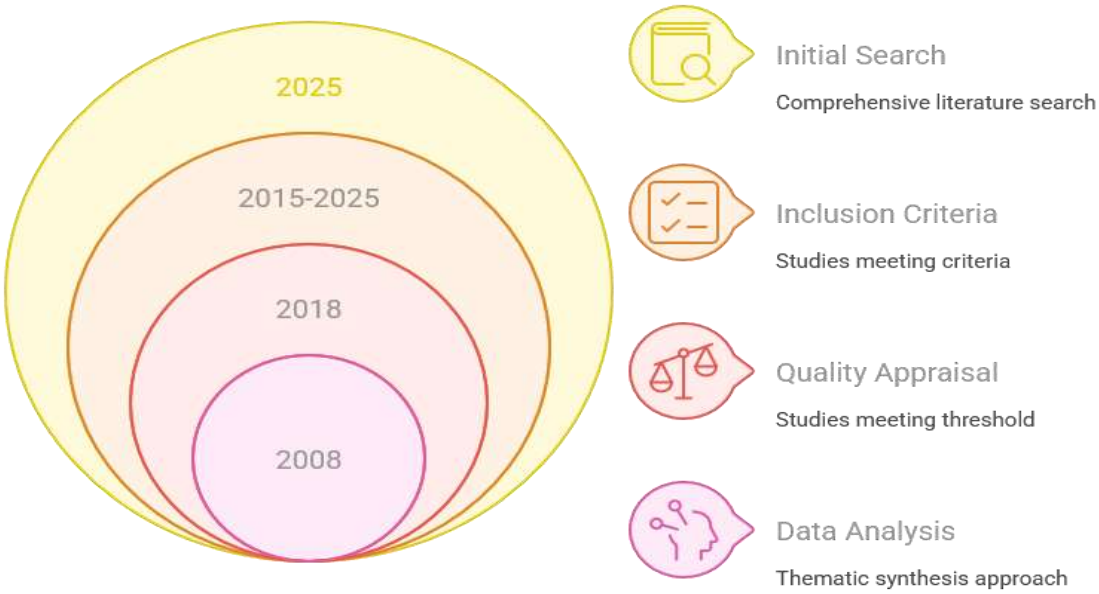


Figure 1. Methodology for Understanding Digital Reading Behavior in Afghanistan

Results

The meta-synthesis of 25 qualitative and mixed-methods studies revealed a complex interplay of factors shaping digital reading behavior in Afghanistan, organized into five primary domains: personal, environmental, technical, psychosocial, and content-related. These factors do not operate in isolation but rather interact dynamically, creating a unique ecosystem where digital reading is simultaneously a necessity for some and an inaccessible luxury for others. Table 1 provides an overview of these five domains and their key factors. The conceptual framework in Figure 1 illustrates the interrelationships between these domains and their collective impact on digital reading engagement in the Afghan context.

Table 1: *Five Domains of Factors Influencing Digital Reading Behavior*

Domain	Key Factors	Impact on Digital Reading
Personal	Digital literacy, motivation	Foundational to engagement with digital reading
Environmental	Infrastructure limitations	Can enable or completely preclude digital reading activities
Technical	Device accessibility, UI design	Mediates the digital reading experience
Psychosocial	Family influence	Exerts a powerful influence on individual reading behaviors
Content-related	Language localization, multimedia integration	Decisive factor in attracting and retaining readers

Note. Data were synthesized from the studies included in this meta-synthesis.

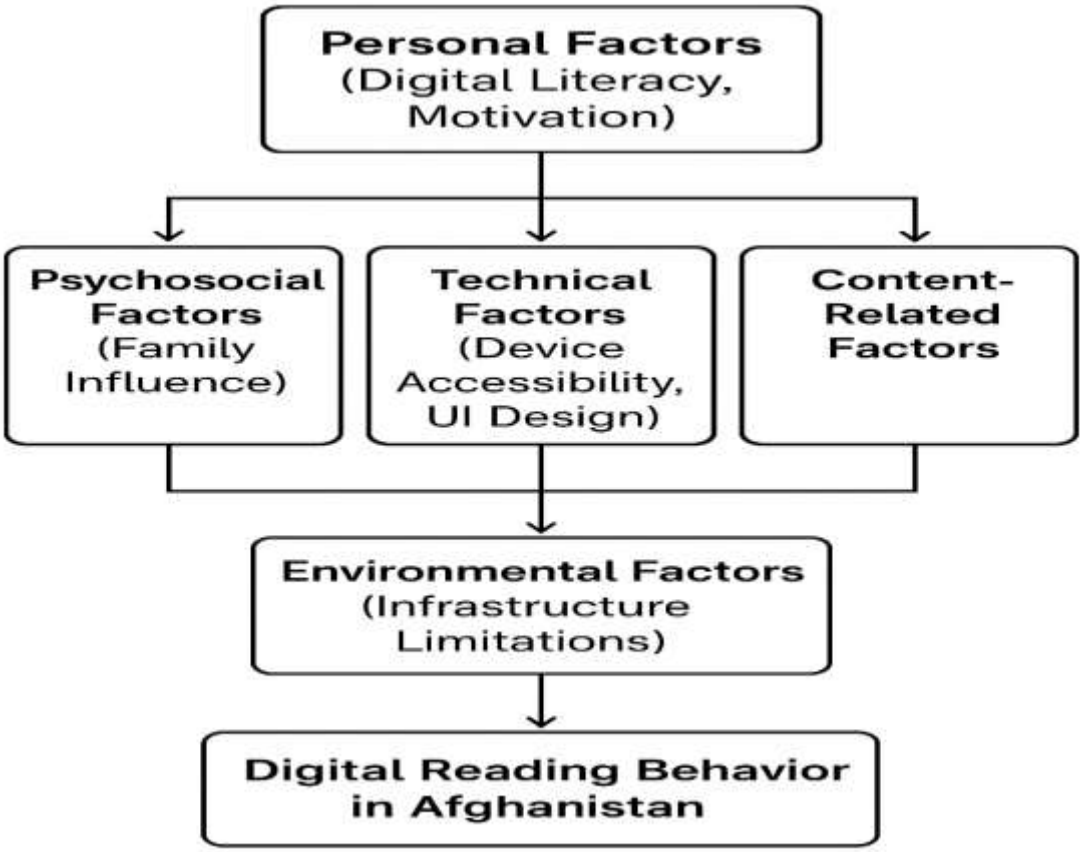


Figure 1: *Conceptual Framework of Factors Influencing Digital Reading Behavior in Afghanistan*

Note. A diagram showing five interconnected circles representing the domains (Personal, Environmental, Technical, Psychosocial, Content-Related), all pointing towards a central outcome: "Digital Reading Behavior." Arrows indicate bidirectional influences between domains.

Personal Factors: The Foundation of Engagement: At the individual level, personal factors, particularly digital literacy and motivation, were foundational to any engagement with digital reading. A consistent finding across the literature was that digital literacy in Afghanistan is frequently constrained by language interfaces. Karimi (2021) found that users often rely on phonetic transliteration using Latin keyboards or memorize icon locations, a process that is inefficient and prone to error. This limitation forces a cognitive load that detracts from the primary task of reading comprehension. The synthesis also revealed that motivation in Afghanistan is predominantly pragmatic and vocational. Wardak (2023) reported that engagement with digital texts was highest when the content was directly linked to acquiring a specific skill for employability. Table 2 provides a comparative overview of these personal factors.

Table 2 *Personal Factors Comparison*

Factor	Description	Impact in the Afghan Context
Digital Literacy	Skills needed to navigate digital interfaces and content	Constrained by language barriers, users rely on phonetic transliteration or memorized icon locations
Motivation	Drive to engage with digital reading.	Predominantly pragmatic and vocational, focused on employability and skill acquisition rather than leisure

Note. Data were synthesized from the studies included in this meta-synthesis.

Environmental Factors: The Overwhelming Constraint of Infrastructure: Compounding these individual-level challenges are profound environmental constraints, primarily related to technological infrastructure. The fragility of Afghanistan's technological infrastructure is a pervasive barrier. Rahimi (2022) found that 78% of student respondents in Kabul reported

having their academic work interrupted by power or internet failures at least weekly. Furthermore, the high cost and low bandwidth of available internet prevent the downloading of large files for offline use, fostering a sense of frustration that discourages sustained digital reading habits. This creates a "first-order digital divide" (Afghanistan Tech Forum, 2023) of access that is so profound that it prevents engagement with the "second-order divide" of skills and usage. Table 3 details these challenges.

Table 3: *Environmental Challenges in Afghanistan*

Challenge	Specific Manifestations	Impact on Digital Reading
Infrastructure	Frequent power outages, low bandwidth internet, and high cost	Disrupts reading sessions, prevents downloading large files, and creates frustration

Note. Data were synthesized from the studies included in this meta-synthesis.

Technical Factors: The Mediating Role of Technology: The nature of the technology itself, including device accessibility and user interface design, plays a crucial mediating role. The synthesis overwhelmingly indicated that access to digital reading is mediated through mobile phones. Stanikzai (2020) noted that for a majority of Afghans, the smartphone is their sole gateway to the internet. While this increases accessibility, it introduces significant limitations, such as visual fatigue from small screens and constant interruptions from notifications. Khan (2023) found that participants, particularly in rural areas, strongly preferred icon-based navigation and minimal text on menus, suggesting that successful platforms must prioritize visual cues to lower the barrier to entry. Table 4 contrasts these technical factors.

Table 4: *Technical Factors Comparison*

Factor	Description	Impact in the Afghan Context
Device Access	Availability and type of devices used for digital reading	Predominantly smartphone-based; small screens cause visual fatigue, and multifunctionality creates distractions
UI Design	Interface elements and navigation systems	A preference for icon-based navigation and minimal text creates a trade-off between accessibility and functionality.

Note. Data were synthesized from the studies included in this meta-synthesis.

Psychosocial Factors: The Influence of Family Dynamics

The social fabric, particularly family dynamics, exerts a significant influence on individual reading behaviors. Mohammadi (2022) found that elders often viewed digital devices primarily as tools for communication or for accessing news, dismissing their use for leisure reading or extensive learning as a waste of time or electricity. This disapproval can create a home environment unsupportive of developing digital reading habits, leading younger users to hide their activities or feel guilty for engaging with digital texts. Table 5 outlines these psychosocial factors.

Table 5: *Psychosocial Factors Comparison*

Factor	Description	Impact in the Afghan Context
Family Influence	Attitudes and practices within family units	Elders often view digital devices as tools for communication/news, not extensive learning; this creates an unsupportive environment.

Note. Data were synthesized from the studies included in this meta-synthesis.

Content-Related Factors: The Decisive Role of Localization and Multimedia

The nature of the content itself emerged as a decisive factor in attracting and retaining readers. A critical and consistently voiced need was for high-quality, culturally relevant content in Dari and Pashto. Safi (2021) highlighted the frustration with poorly translated materials that lacked cultural resonance. For users with lower literacy levels, multimedia elements

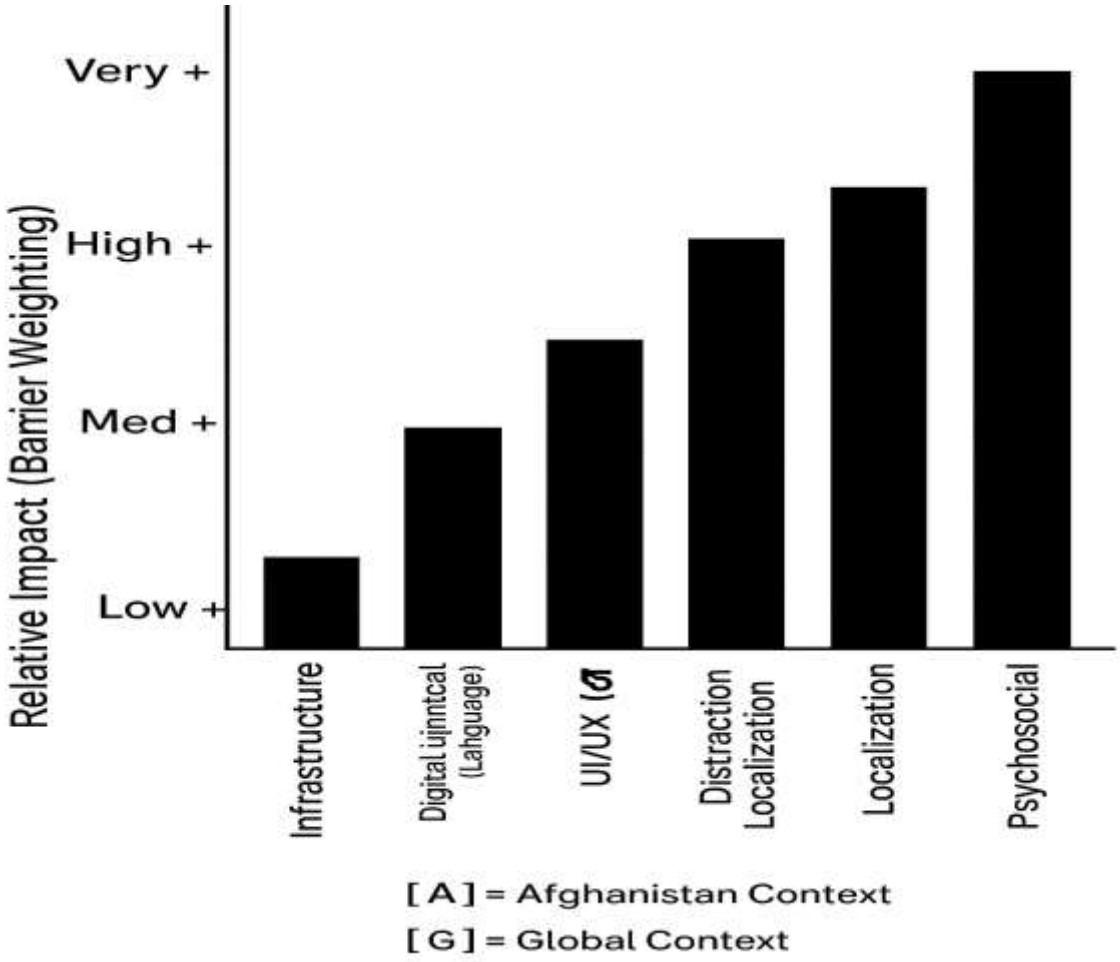
are essential accessibility tools. Ansary (2023) found that the inclusion of an audio narration track dramatically improved comprehension and story retention in rural communities. Table 6 summarizes these content-related factors.

Table 6 *Content-Related Factors Comparison*

Factor	Description	Impact in the Afghan Context
Localization	Cultural and linguistic adaptation of content	Critical need for high-quality content in Dari and Pashto that incorporates local stories and examples
Multimedia	Integration of non-text elements	Essential accessibility tool for users with lower literacy levels; audio narration dramatically improves comprehension

Note. Data were synthesized from the studies included in this meta-synthesis.

Figure 2 *Comparative Weighting of Digital Reading Barriers: Afghanistan vs. Global Context*



Note. A bar graph comparing two contexts. For "Global Context," the bars for "UI/UX Design" and "Digital Distractions" are the highest. For "Afghanistan Context," the bars for "Infrastructure" and "Digital Literacy (Language)" are disproportionately higher than all other factors.

Discussion

The overwhelming consensus from this synthesis is that infrastructural limitations and deficient digital literacy are the primary, foundational barriers that overshadow all others. Without reliable electricity and accessible internet, the most sophisticated user interface or culturally relevant content is rendered useless. Consequently, any intervention aimed at enhancing digital reading must first address these foundational issues; otherwise, efforts to improve content or design will have limited impact.

The findings underscore that cultural adaptation is not a mere cosmetic enhancement but a prerequisite for acceptance and engagement. As Safi's (2021) research highlights, content that fails to resonate with Afghan values, narratives, and social norms is likely to be met with suspicion or indifference. This process of "cultural localization" (Ahmad & Hassan, 2022) builds trust and makes the digital reading experience feel like an extension of the local culture, rather than an alien imposition.

Given the severe and persistent infrastructural challenges, this study strongly suggests that policy must pivot towards innovative, offline-first solutions. The proposal for government-NGO partnerships to establish community-based offline digital libraries emerges as a critical and actionable recommendation. This approach aligns with broader strategies for leveraging information technology for sustainable rural development, even in connectivity-limited environments (Yar & Naderi, 2025). These "digital libraries," consisting of a local server loaded with curated educational and literary content, could be updated periodically using physical drives. This "sneakernet" approach bypasses the need for a constant internet connection. The World Literacy Foundation (2023) has documented the success of similar models in other low-bandwidth regions, noting that they provide a safe, reliable, and cost-effective means of disseminating information.

When contrasted with global digital reading research, such as the comprehensive meta-synthesis by Nildarar and Koohi Rostami (2025), the Afghan context presents a starkly different set of predominant challenges. In Western and many other developed contexts, the research discourse often centers on optimizing user experience, mitigating cognitive overload from multimedia, or managing digital distractions. In Afghanistan, however, the most formidable barriers are related to basic infrastructure and access. This stark difference highlights that any framework for understanding digital reading must be deeply contextual.

Conclusion

This meta-synthesis has comprehensively demonstrated that a confluence of severe and interlocking barriers across infrastructural, socio-cultural, and educational domains constrains digital reading behavior in Afghanistan. The findings reveal that the foundational challenges of unreliable electricity, expensive and low-bandwidth internet, and a critical lack of digital literacy in local languages create an environment where digital reading remains inaccessible to the majority. These technical and skill-based barriers are profoundly exacerbated by a socio-political context defined by cultural norms that limit access to digital resources. While factors like user interface design and content multimedia integration are relevant, they are secondary to these more pressing constraints. Ultimately, fostering a vibrant digital reading culture in Afghanistan is not merely a technological challenge but a complex developmental issue that requires a holistic and culturally sensitive approach.

Future research must pivot towards developing and testing pragmatic solutions tailored to this reality. There is an urgent need for experimental studies on the effectiveness of low-bandwidth content delivery models, such as text-based formats and compressed audio files, designed to function in offline environments. Furthermore, participatory action research is needed to explore and evaluate community-based digital literacy initiatives that are co-designed with local populations to ensure they are culturally appropriate and sustainable. By focusing on these practical, ground-up strategies, researchers and practitioners can make meaningful progress. Ultimately, enhancing digital reading engagement is a vital investment in the intellectual empowerment, educational advancement, and future resilience of the Afghan people.

This meta-synthesis is limited by the scope and quality of the available primary studies, which are constrained by the challenging research environment in Afghanistan. Future research must pivot towards developing and testing pragmatic solutions tailored to this reality. There is an urgent need for experimental studies on the effectiveness of low-bandwidth content delivery models, such as text-based formats and compressed audio files, designed to function in offline environments. Furthermore, participatory action research is needed to explore and evaluate community-based digital literacy initiatives that are co-designed with local populations to ensure they are culturally appropriate and sustainable. By focusing on these practical, ground-up strategies, researchers and practitioners can make meaningful progress in enhancing digital reading engagement in Afghanistan.

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Conflict of Interest: The authors declare no conflict of interest.

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